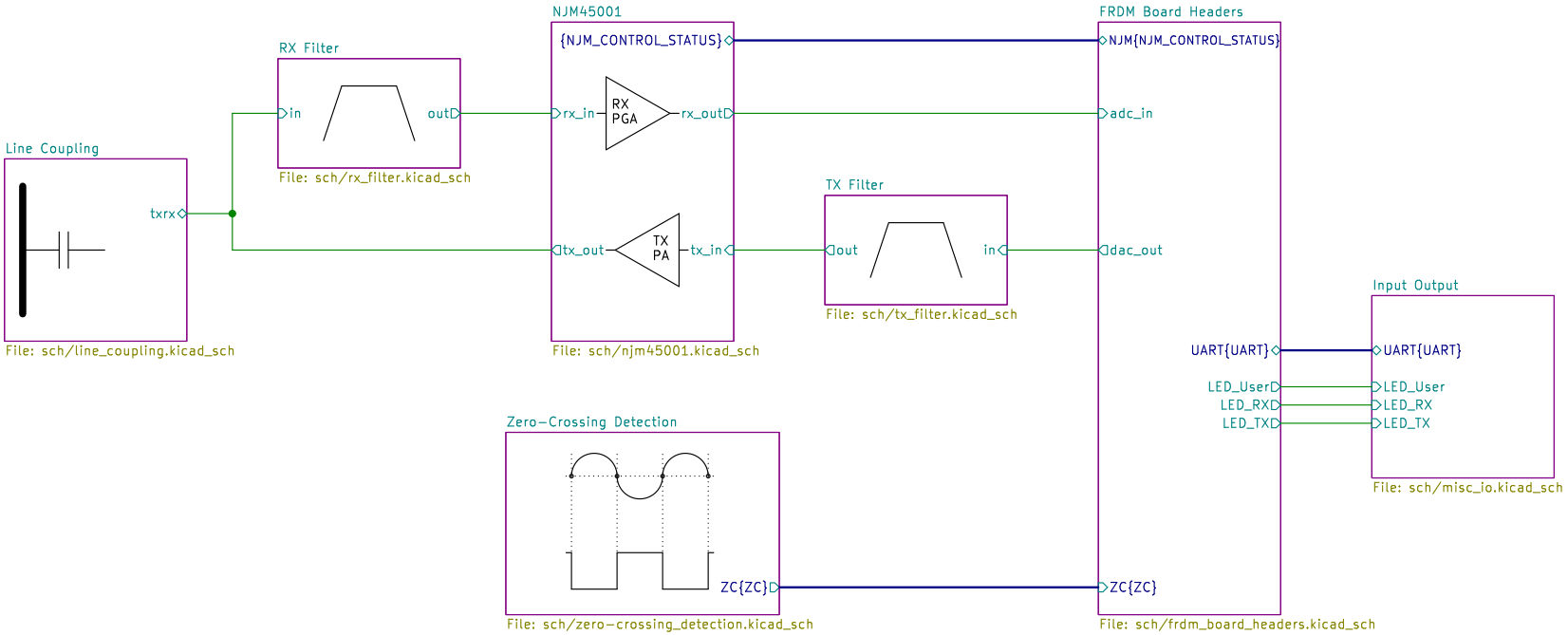


Variant	R100	R101
Full/switchable band	47k	DNP
CENELEC−A only	DNP	47k

R100 47k FULL 1206

R101 47k CEN−A 1206

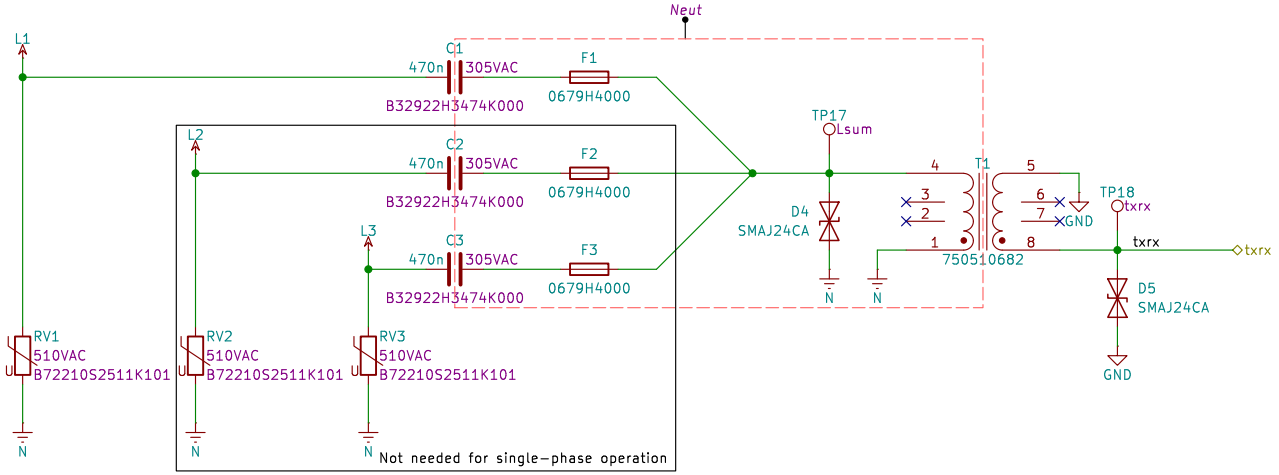
Phoenix Systems

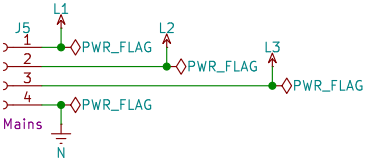
Sheet: Root
File: plc−modem.kicad_sch
Author: Filip Piórski

Title: MCX N947 PLC Board

Size: A4	Date: 2025−05−12	Hash: c8407f4e	Rev: 2	Id: 1/8

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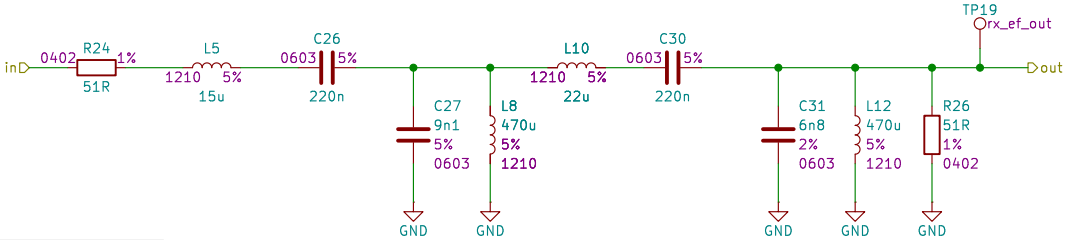
Sheet: Line Coupling
File: line_coupling.kicad_sch
Author: Filip Piórski

Title: Line Coupling

Size: A5	Date: 2025-05-12	Hash: c8407f4e	Rev: 2	Id: 2/8

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Variant	R24	L5	C26	L8	C27	L10	C30	L12	C31	R26
Full/switchable band	51R	15u	220n	470u	9n1	22u	220n	470u	6n8	51R
CENELEC-A only	56R	100u	330n	680u	47n	150u	180n	680u	27n	56R



Capacitor Value	Suggested Part
220 nF	KEMET C0603C224J3RACTU
9.1 nF	KEMET C0603C912J3GACTU
6.8 nF	KEMET C0603C682G3GECAUTO
330 nF	KEMET C0603C334J4RACTU
47 nF	KEMET C0603C473J3RACTU
180 nF	KEMET C0603C184J3RACTU
27 nF	KEMET C0603C273J3RACTU

Inductor Value	Suggested Part
15 µH	TDK NLV32T-150J-EF
470 µH	TDK NLV32T-471J-EF
22 µH	TDK NLV32T-220J-EF
100 µH	TAIYO YUDEN LSQBA321818T101K
680 µH	TAIYO YUDEN LSQBA321818T681K
150 µH	TAIYO YUDEN LSQBA321818T151K

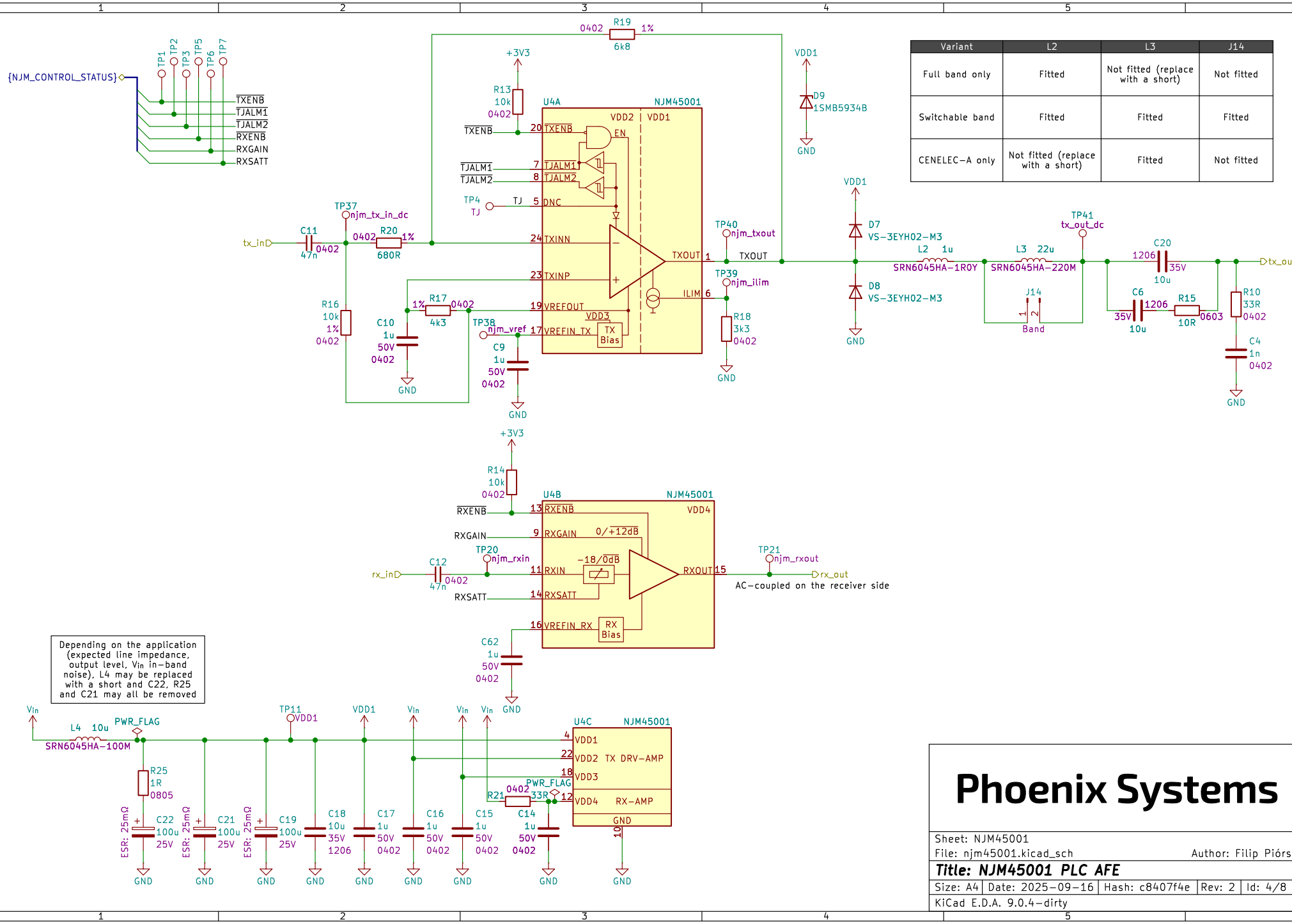
Phoenix Systems

Sheet: RX Filter
File: rx_filter.kicad_sch
Author: F. Piórski/J. Martyniak

Title: RX Filter

Size: A5	Date: 2025-05-12	Hash: c8407f4e	Rev: 2	Id: 3/8

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Variant	L2	L3	J14
Full band only	Fitted	Not fitted (replace with a short)	Not fitted
Switchable band	Fitted	Fitted	Fitted
CENELEC-A only	Not fitted (replace with a short)	Fitted	Not fitted

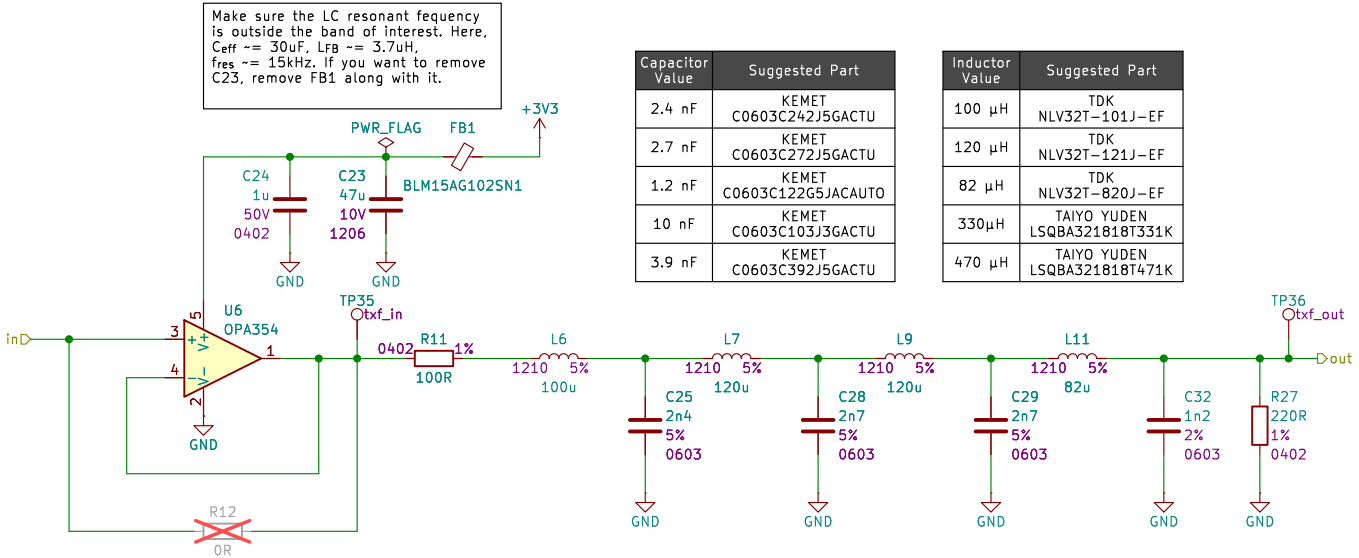
Phoenix Systems

Sheet: NJM45001
File: njm45001.kicad_sch
Author: Filip Piórski

Title: NJM45001 PLC AFE

Size: A4 | Date: 2025-09-16 | Hash: c8407f4e | Rev: 2 | Id: 4/8

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Capacitor Value	Suggested Part
2.4 nF	KEMET C0603C242J5GACTU
2.7 nF	KEMET C0603C272J5GACTU
1.2 nF	KEMET C0603C122G5JACAUTO
10 nF	KEMET C0603C103J3GACTU
3.9 nF	KEMET C0603C392J5GACTU

Inductor Value	Suggested Part
100 µH	TDK NLV32T-101J-EF
120 µH	TDK NLV32T-121J-EF
82 µH	TDK NLV32T-820J-EF
330µH	TAIYO YUDEN LSQBA321818T331K
470 µH	TAIYO YUDEN LSQBA321818T471K

Variant	R11	L6	C25	L7	C28	L9	C29	L11	C32	R27
Full/switchable band	100R	100u	2n4	120u	2n7	120u	2n7	82u	1n2	220R
CENELEC-A only	82R	330u	10n	470u	10n	470u	10n	330u	3n9	220R

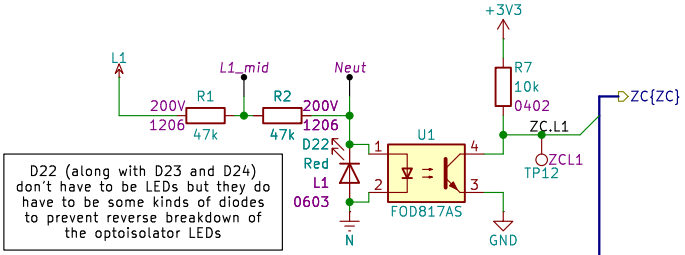
Phoenix Systems

Sheet: TX Filter
File: tx_filter.kicad_sch
Author: F. Piórski/J. Martyniak

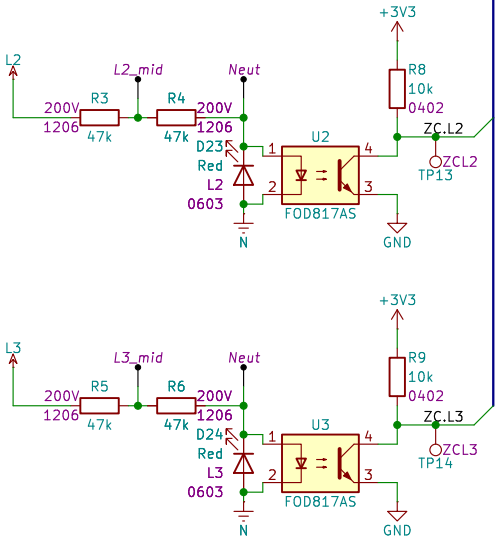
Title: TX Filter

Size: A5	Date: 2025-05-12	Hash: c8407f4e	Rev: 2	Id: 5/8

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D22 (along with D23 and D24) don't have to be LEDs but they do have to be some kinds of diodes to prevent reverse breakdown of the optoisolator LEDs



Not needed for single-phase operation, depending on the system architecture it may not even be needed for three-phase operation

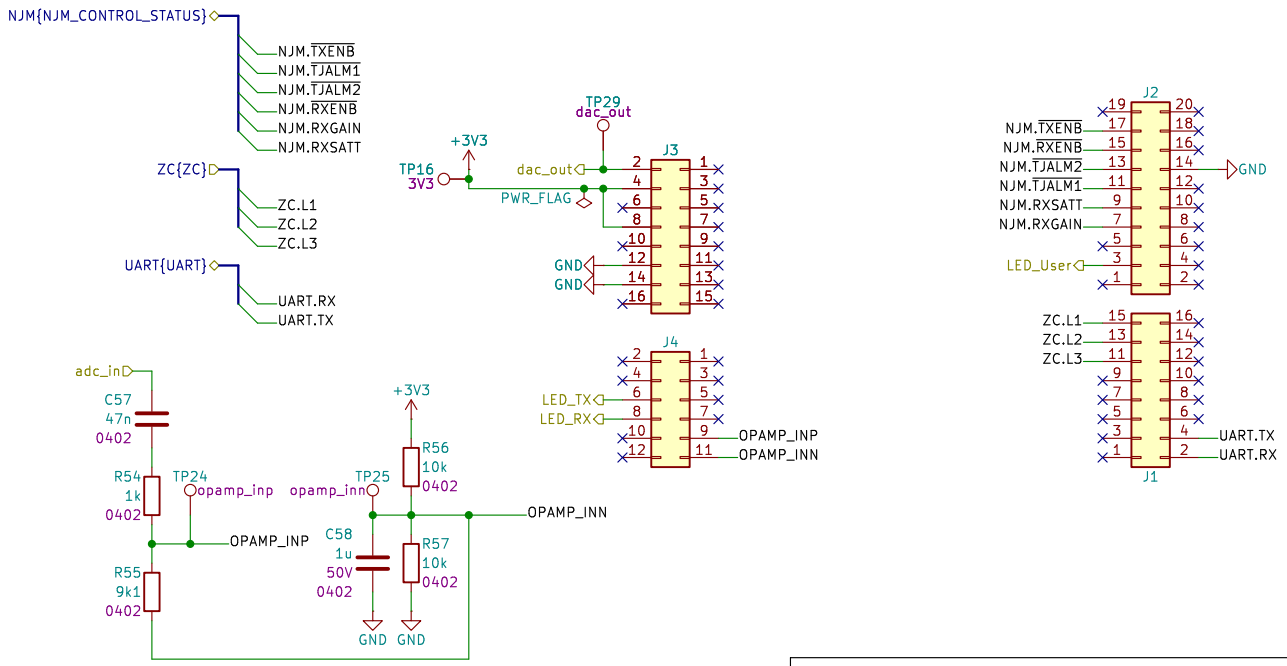
Phoenix Systems

Sheet: Zero-Crossing Detection
File: zero-crossing_detection.kicad_sch Author: Filip Piórski

Title: Zero Corssing Detection

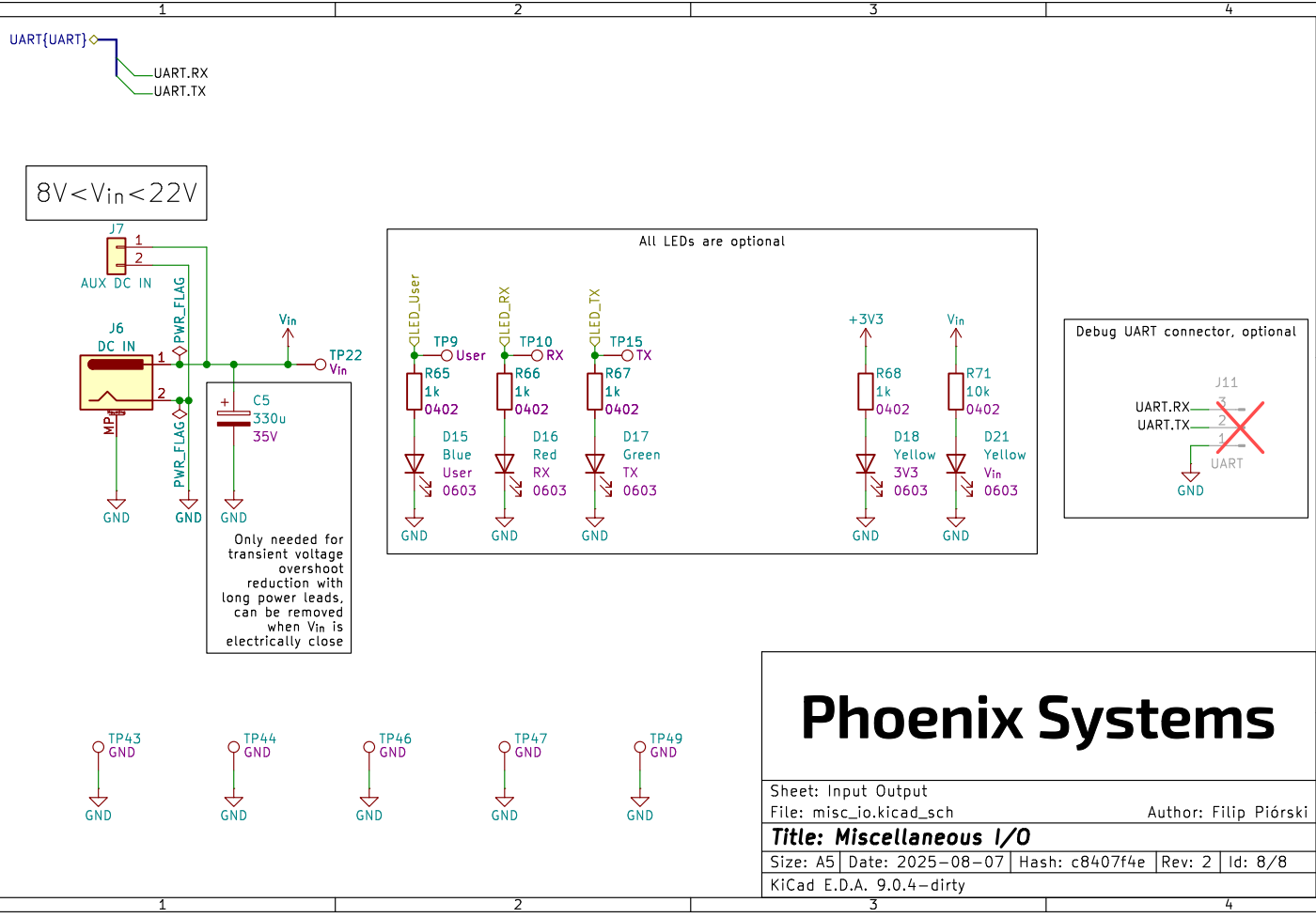
Size: A5	Date: 2025-05-12	Hash: c8407f4e	Rev: 2	Id: 6/8

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Sheet: FRDM Board Headers	
File: frdm_board_headers.kicad_sch	Author: Filip Piórski
Title: FRDM-MCXN947 Connections	
Size: A5 | Date: 2025-08-07 | Hash: c8407f4e | Rev: 2 | Id: 7/8	
KiCad E.D.A. 9.0.4-dirty	


UART{UART}
UART.RX
UART.TX
8V<Vin<22V
J7
AUX DC IN
PWR_FLAG
J6
DC IN
MP
Vin
TP22
Vin
C5
330u
35V
GND
Only needed for transient voltage overshoot reduction with long power leads, can be removed when Vin is electrically close
All LEDs are optional
OLED_User
TP9
User
R65
1k
0402
D15
Blue
User
0603
OLED_RX
TP10
RX
R66
1k
0402
D16
Red
RX
0603
OLED_TX
TP15
TX
R67
1k
0402
D17
Green
TX
0603
+3V3
R68
1k
0402
D18
Yellow
3V3
0603
Vin
R71
10k
0402
D21
Yellow
Vin
0603
Debug UART connector, optional
J11
UART.RX
UART.TX
UART
GND
TP43
TP44
TP46
TP47
TP49
Phoenix Systems
Sheet: Input Output
File: misc_io.kicad_sch
Author: Filip Piórski
Title: Miscellaneous I/O
Size: A5
Date: 2025-08-07
Hash: c8407f4e
Rev: 2
Id: 8/8
KiCad E.D.A. 9.0.4-dirty